SEQUENCE LISTING

<110> Federspiel, Mark J.

<120> Methods to inhibit infectious agent transmission

<130> 07039-278001

<150> US 09/980,526
<151> 2001-11-15

<150> US 60/135,631
<151> 1999-05-24

<160> 34

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 1
gcgcatgcag atctgatgct taaacaggta gaaattttca ccgatgg 47

<210> 2
<211> 45
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer

<400> 2
gctgctgcgt cgacttaaac ttcaacttgg tagcctgtat cttcc 45

<210> 3
<211> 659
<212> PRT
<213> Porcine endogenous retrovirus

<400> 3
Met His Pro Thr Leu Ser Arg Arg His Leu Pro Ile Arg Gly Gly Lys
1 5 10 15
Pro Lys Arg Leu Lys Ile Pro Leu Ser Phe Ala Ser Ile Ala Trp Phe
20 25 30
Leu Thr Leu Ser Ile Thr Pro Gln Val Asn Gly Lys Arg Leu Val Asp
35 40 45
Ser Pro Asn Ser His Lys Pro Leu Ser Leu Thr Trp Leu Leu Thr Asp
50 55 60
Ser Gly Thr Gly Ile Asn Ile Asn Ser Thr Gln Gly Glu Ala Pro Leu
65 70 75 80
Gly Thr Trp Trp Pro Glu Leu Tyr Val Cys Leu Arg Ser Val Ile Pro
85 90 95
Gly Leu Asn Asp Gln Ala Thr Pro Pro Asp Val Leu Arg Ala Tyr Gly
100 105 110
Phe Tyr Val Cys Pro Gly Pro Pro Asn Asn Glu Glu Tyr Cys Gly Asn
115 120 125
Pro Gln Asp Phe Phe Cys Lys Gln Trp Ser Cys Val Thr Ser Asn Asp
130 135 140
Gly Asn Trp Lys Trp Pro Val Ser Gln Gln Asp Arg Val Ser Tyr Ser
145 150 155 160
Phe Val Asn Asn Pro Thr Ser Tyr Asn Gln Phe Asn Tyr Gly His Gly
165 170 175
Arg Trp Lys Asp Trp Gln Gln Arg Val Gln Lys Asp Val Arg Asn Lys
180 185 190
Gln Ile Ser Cys His Ser Leu Asp Leu Asp Tyr Leu Lys Ile Ser Phe

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        195                 200                 205
Thr Glu Lys Gly Lys Gln Glu Asn Ile Gln Lys Trp Val Asn Gly Met
    210                 215                 220
Ser Trp Gly Ile Val Tyr Tyr Arg Gly Ser Gly Arg Lys Lys Gly Ser
225                 230                 235                 240
Val Leu Thr Ile Arg Leu Arg Ile Glu Thr Gln Met Glu Pro Pro Val
                245                 250                 255
Ala Ile Gly Pro Asn Lys Gly Leu Ala Glu Gln Gly Pro Pro Ile Gln
            260                 265                 270
Glu Gln Arg Pro Ser Pro Asn Pro Ser Asp Tyr Asn Thr Thr Ser Gly
        275                 280                 285
Ser Val Pro Thr Glu Pro Asn Ile Thr Ile Lys Thr Gly Ala Lys Leu
    290                 295                 300
Phe Asn Leu Ile Gln Gly Ala Phe Gln Ala Leu Asn Ser Thr Thr Pro
305                 310                 315                 320
Glu Ala Thr Ser Ser Cys Trp Leu Cys Leu Ala Ser Gly Pro Pro Tyr
                325                 330                 335
Tyr Glu Gly Met Ala Arg Gly Gly Lys Phe Asn Val Thr Lys Glu His
            340                 345                 350
Arg Asp Gln Cys Thr Trp Gly Ser Gln Asn Lys Leu Thr Leu Thr Glu
        355                 360                 365
Val Ser Gly Lys Gly Thr Cys Ile Gly Met Val Pro Pro Ser His Gln
    370                 375                 380
His Leu Cys Asn His Thr Glu Ala Phe Asn Arg Thr Ser Glu Ser Gln
385                 390                 395                 400
Tyr Leu Val Pro Gly Tyr Asp Arg Trp Trp Ala Cys Asn Thr Gly Leu
                405                 410                 415
Thr Pro Cys Val Ser Thr Leu Val Phe Asn Gln Thr Lys Asp Phe Cys
            420                 425                 430
Val Met Val Gln Ile Val Pro Arg Val Tyr Tyr Tyr Pro Glu Lys Ala
        435                 440                 445
Val Leu Asp Glu Tyr Asp Tyr Arg Tyr Asn Arg Pro Lys Arg Glu Pro
    450                 455                 460
Ile Ser Leu Thr Leu Ala Val Met Leu Gly Leu Gly Val Ala Ala Gly
465                 470                 475                 480
Val Gly Thr Gly Thr Ala Ala Leu Ile Thr Gly Pro Gln Gln Leu Glu
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                485                 490                 495
Lys Gly Leu Ser Asn Leu His Arg Ile Val Thr Glu Asn Leu Gln Ala
            500                 505                 510
Leu Glu Lys Ser Val Ser Asn Leu Glu Glu Ser Leu Thr Ser Leu Ser
        515                 520                 525
Glu Val Val Leu Gln Asn Arg Arg Gly Leu Asp Leu Leu Phe Leu Lys
    530                 535                 540
Glu Gly Gly Leu Cys Val Ala Leu Lys Glu Glu Cys Cys Phe Tyr Val
545                 550                 555                 560
Asp His Ser Gly Ala Ile Arg Asp Ser Met Asn Lys Leu Arg Glu Arg
                565                 570                 575
Leu Glu Lys Arg Arg Arg Glu Lys Glu Thr Thr Gln Gly Trp Phe Glu
            580                 585                 590
Gly Trp Phe Asn Arg Ser Pro Trp Leu Ala Thr Leu Leu Ser Ala Leu
        595                 600                 605
Thr Gly Pro Leu Ile Val Leu Leu Leu Leu Leu Thr Val Gly Pro Cys
    610                 615                 620
Ile Ile Asn Lys Leu Ile Ala Phe Ile Arg Glu Arg Ile Ser Ala Val
625                 630                 635                 640
Gln Ile Met Val Leu Arg Gln Gln Tyr Gln Ser Pro Ser Ser Arg Glu
                645                 650                 655
Ala Gly Arg
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<210> 4
<211> 660
<212> PRT
<213> Porcine endogenous retrovirus

<400> 4

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Met His Pro Thr Leu Ser Arg Arg His Leu Pro Ile Arg Gly Gly Lys
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Pro Lys Arg Leu Lys Ile Pro Leu Ser Phe Ala Ser Ile Ala Trp Phe
            20                  25                  30
Leu Thr Leu Ser Ile Thr Pro Gln Val Asn Gly Lys Arg Leu Val Asp
        35                  40                  45
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Ser Pro Asn Ser His Lys Pro Leu Ser Leu Thr Trp Leu Leu Thr Asp
    50                  55                  60
Ser Gly Thr Gly Ile Asn Ile Asn Ser Thr Gln Gly Glu Ala Pro Leu
65                  70                  75                  80
Gly Thr Trp Trp Pro Glu Leu Tyr Val Cys Leu Arg Ser Val Ile Pro
                85                  90                  95
Gly Leu Asn Asp Gln Ala Thr Pro Pro Asp Val Leu Arg Ala Tyr Gly
            100                 105                 110
Phe Tyr Val Cys Pro Gly Pro Pro Asn Asn Glu Glu Tyr Cys Gly Asn
        115                 120                 125
Pro Gln Asp Phe Phe Cys Lys Gln Trp Ser Cys Ile Thr Ser Asn Asp
    130                 135                 140
Gly Asn Trp Lys Trp Pro Val Ser Gln Gln Asp Arg Val Ser Tyr Ser
145                 150                 155                 160
Phe Val Asn Asn Pro Thr Ser Tyr Asn Gln Phe Asn Tyr Gly His Gly
                165                 170                 175
Arg Trp Lys Asp Trp Gln Gln Arg Val Gln Lys Asp Val Arg Asn Lys
            180                 185                 190
Gln Ile Ser Cys His Ser Leu Asp Leu Asp Tyr Leu Lys Ile Ser Phe
        195                 200                 205
Thr Glu Lys Gly Lys Gln Glu Asn Ile Gln Lys Trp Val Asn Gly Ile
    210                 215                 220
Ser Trp Gly Ile Val Tyr Tyr Gly Gly Ser Gly Arg Lys Lys Gly Ser
225                 230                 235                 240
Val Leu Thr Ile Arg Leu Arg Ile Glu Thr Gln Met Glu Pro Pro Val
                245                 250                 255
Ala Ile Gly Pro Asn Lys Gly Leu Ala Glu Gln Gly Pro Pro Ile Gln
            260                 265                 270
Glu Gln Arg Pro Ser Pro Asn Pro Ser Asp Tyr Asn Thr Thr Ser Gly
        275                 280                 285
Ser Val Pro Thr Glu Pro Asn Ile Thr Ile Lys Thr Gly Ala Lys Leu
    290                 295                 300
Phe Ser Leu Ile Gln Gly Ala Phe Gln Ala Leu Asn Ser Thr Thr Pro
305                 310                 315                 320
Glu Ala Thr Ser Ser Cys Trp Leu Cys Leu Ala Ser Gly Pro Pro Tyr
                325                 330                 335
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Tyr Glu Gly Met Ala Arg Gly Gly Lys Phe Asn Val Thr Lys Glu His
            340                 345                 350
Arg Asp Gln Cys Thr Trp Gly Ser Gln Asn Lys Leu Thr Leu Thr Glu
        355                 360                 365
Val Ser Gly Lys Gly Thr Cys Ile Gly Met Val Pro Pro Ser His Gln
    370                 375                 380
His Leu Cys Asn His Thr Glu Ala Phe Asn Arg Thr Ser Glu Ser Gln
385                 390                 395                 400
Tyr Leu Val Pro Gly Tyr Asp Arg Trp Trp Ala Cys Asn Thr Gly Leu
                405                 410                 415
Thr Pro Cys Val Ser Thr Leu Val Phe Asn Gln Thr Lys Asp Phe Cys
            420                 425                 430
Val Met Val Gln Ile Val Pro Arg Val Tyr Tyr Tyr Pro Glu Lys Ala
        435                 440                 445
Val Leu Asp Glu Tyr Asp Tyr Arg Tyr Asn Arg Pro Lys Arg Glu Pro
    450                 455                 460
Ile Ser Leu Thr Leu Ala Val Met Leu Gly Leu Gly Val Ala Ala Gly
465                 470                 475                 480
Val Gly Thr Gly Thr Ala Ala Leu Ile Thr Gly Pro Gln Gln Leu Glu
                485                 490                 495
Lys Gly Leu Ser Asn Leu His Arg Ile Val Thr Glu Asp Leu Gln Ala
            500                 505                 510
Leu Glu Lys Ser Val Ser Asn Leu Glu Glu Ser Leu Thr Ser Leu Ser
        515                 520                 525
Glu Val Val Leu Gln Asn Arg Arg Gly Leu Asp Leu Leu Phe Leu Lys
    530                 535                 540
Glu Gly Gly Leu Cys Val Ala Leu Lys Glu Glu Cys Cys Phe Tyr Val
545                 550                 555                 560
Asp His Ser Gly Ala Ile Arg Asp Ser Met Ser Lys Leu Arg Glu Arg
                565                 570                 575
Leu Glu Arg Arg Arg Arg Glu Arg Glu Ala Asp Gln Gly Trp Phe Glu
            580                 585                 590
Gly Trp Phe Asn Arg Ser Pro Trp Met Thr Thr Leu Leu Ser Ala Leu
        595                 600                 605
Thr Gly Pro Leu Val Val Leu Leu Leu Leu Leu Thr Val Gly Pro Cys
    610                 615                 620
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Leu Ile Asn Arg Phe Val Ala Phe Val Arg Glu Arg Val Ser Ala Val
625 630 635 640
Gln Ile Met Val Leu Arg Gln Gln Tyr Gln Gly Leu Leu Ser Gln Gly
645 650 655
Glu Thr Asp Leu
660

<210> 5
<211> 638
<212> PRT
<213> Porcine endogenous retrovirus

<400> 5
Met His Pro Thr Leu Asn Arg Arg His Leu Pro Ile Arg Gly Gly Lys
1 5 10 15
Pro Lys Arg Leu Lys Ile Pro Leu Ser Phe Ala Ser Ile Ala Trp Phe
20 25 30
Leu Thr Leu Ser Ile Thr Ser Gln Thr Asn Gly Met Arg Ile Gly Asp
35 40 45
Ser Leu Asn Ser His Lys Pro Leu Ser Leu Thr Trp Leu Ile Thr Asp
50 55 60
Ser Gly Thr Gly Ile Asn Ile Asn Asn Thr Gln Gly Glu Ala Pro Leu
65 70 75 80
Gly Thr Trp Trp Pro Asp Leu Tyr Val Cys Leu Arg Ser Val Ile Pro
85 90 95
Ser Leu Thr Ser Pro Pro Asp Ile Leu His Ala His Gly Phe Tyr Val
100 105 110
Cys Pro Gly Pro Pro Asn Asn Gly Lys His Cys Gly Asn Pro Arg Asp
115 120 125
Phe Phe Cys Lys Gln Trp Asn Cys Val Thr Ser Asn Asp Gly Tyr Trp
130 135 140
Lys Trp Pro Thr Ser Gln Gln Asp Arg Val Ser Phe Ser Tyr Val Asn
145 150 155 160
Thr Tyr Thr Ser Ser Gly Gln Phe Asn Tyr Leu Thr Trp Ile Arg Thr
165 170 175
Gly Ser Pro Lys Cys Ser Pro Ser Asp Leu Asp Tyr Leu Lys Ile Ser

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            180                 185                 190
Phe Thr Glu Lys Gly Lys Gln Glu Asn Ile Leu Lys Trp Val Asn Gly
        195                 200                 205
Met Ser Trp Gly Met Val Tyr Tyr Gly Gly Ser Gly Lys Gln Pro Gly
    210                 215                 220
Ser Ile Leu Thr Ile Arg Leu Lys Ile Asn Gln Leu Glu Pro Pro Met
225                 230                 235                 240
Ala Ile Gly Pro Asn Thr Val Leu Thr Gly Gln Arg Pro Pro Thr Gln
                245                 250                 255
Gly Pro Gly Pro Ser Ser Asn Ile Thr Ser Gly Ser Asp Pro Thr Glu
            260                 265                 270
Ser Ser Ser Thr Thr Lys Met Gly Ala Lys Leu Phe Ser Leu Ile Gln
        275                 280                 285
Gly Ala Phe Gln Ala Leu Asn Ser Thr Thr Pro Glu Ala Thr Ser Ser
    290                 295                 300
Cys Trp Leu Cys Leu Ala Ser Gly Pro Pro Tyr Tyr Glu Gly Met Ala
305                 310                 315                 320
Arg Arg Gly Lys Phe Asn Val Thr Lys Glu His Arg Asp Gln Cys Thr
                325                 330                 335
Trp Gly Ser Gln Asn Lys Leu Thr Leu Thr Glu Val Ser Gly Lys Gly
            340                 345                 350
Thr Cys Ile Gly Lys Val Pro Pro Ser His Gln His Leu Cys Asn His
        355                 360                 365
Thr Glu Ala Phe Asn Gln Thr Ser Glu Ser Gln Tyr Leu Val Pro Gly
    370                 375                 380
Tyr Asp Arg Trp Trp Ala Cys Asn Thr Gly Leu Thr Pro Cys Val Ser
385                 390                 395                 400
Thr Leu Val Phe Asn Gln Thr Lys Asp Phe Cys Ile Met Val Gln Ile
                405                 410                 415
Val Pro Arg Val Tyr Tyr Tyr Pro Glu Lys Ala Ile Leu Asp Glu Tyr
            420                 425                 430
Asp Tyr Arg Asn His Arg Gln Lys Arg Glu Pro Ile Ser Leu Thr Leu
        435                 440                 445
Ala Val Met Leu Gly Leu Gly Val Ala Ala Gly Val Gly Thr Gly Thr
    450                 455                 460
Ala Ala Leu Val Thr Gly Pro Gln Gln Leu Glu Thr Gly Leu Ser Asn
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465 470 475 480
Leu His Arg Ile Val Thr Glu Asp Leu Gln Ala Leu Glu Lys Ser Val
485 490 495
Ser Asn Leu Glu Glu Ser Leu Thr Ser Leu Ser Glu Val Val Leu Gln
500 505 510
Asn Arg Arg Gly Leu Asp Leu Leu Phe Leu Lys Glu Gly Gly Leu Cys
515 520 525
Val Ala Leu Lys Glu Glu Cys Cys Phe Tyr Val Asp His Ser Gly Ala
530 535 540
Ile Arg Asp Ser Met Asn Lys Leu Arg Glu Arg Leu Glu Lys Arg Arg
545 550 555 560
Arg Glu Lys Glu Thr Thr Gln Gly Trp Phe Glu Gly Trp Phe Asn Arg
565 570 575
Ser Leu Trp Leu Ala Thr Leu Leu Ser Ala Leu Thr Gly Pro Leu Ile
580 585 590
Val Leu Leu Leu Leu Leu Thr Val Gly Pro Cys Ile Ile Asn Lys Leu
595 600 605
Ile Ala Phe Ile Arg Glu Arg Ile Ser Ala Val Gln Ile Met Val Leu
610 615 620
Arg Gln Gln Tyr Gln Ser Pro Ser Ser Arg Glu Ala Gly Arg
625 630 635

<210> 6
<211> 704
<212> DNA
<213> Porcine endogenous retrovirus

<400> 6
aatgaaagga tgaaaatgca acctgactct cccagaaccc aggaagttaa taagaagctc 60
taaatgccct cgaattccag accctgttcc ctataggtaa aagatcatac tttttgctgt 120
tttaaaatat gctttctgct ctgtacaaaa ctttgtggaa ggggaaaaac aggcccctga 180
gtatgtgcct ctatgcttga aacttcttga aactgctcct aactgcttgt ttggcttctg 240
taaacctgct tgcataagat aaaaagagga gaagtcaatt gcctaacgga ccccagtaag 300
atcgggtgta ccacaaaatg ttgaaacaca tatcttggtg acaacatgtc tcccccaccc 360
cgaaacatgc gcaaatgtgt aactctaaaa caatttaaat taattggtcc acgaagcgcg 420
ggctctcgaa gttttaaatt gactggtttg tgatattttg aaatgattgg tttgtaaagc 480

gcgggctttg ttgtgaaccc cataaaagct gtcccgactc cacactcggg gccgcagtcc 540
tctacccctg cgtggtgtac gactgtgggc cccagcgcgc ttggaataaa aatcctcttg 600
ctgtttgcat caagaccgct tctcgtgagt gattaagggg agtcgccttt tccgagcctg 660
gaggttcttt ttgctagtct tacatttggg ggctcgtccg ggat 704

<210> 7
<211> 633
<212> DNA
<213> Porcine endogenous retrovirus

<400> 7
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aaataggccc tgagtacatg tctctaggca tgaaacttct tgaaactatt tgagataaca 180
agaaaaggga gtttctaact gcttgtttag cttctgtaaa actggttgcg ccataaagat 240
gttgaaatgt tgatacacat atcttggtga caacatgtct cccccacccc gaaacatgcg 300
caaatgtgta actctaaaac aatttaaatt aattggtcca cgaagcgcgg gctctcgaag 360
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gtggtgtacg actgtgggcc ccagcgcgct tggaataaaa atcctcttgc tgtttgcatc 540
aagaccgctt ctcgtgagtg attaagggga gtcgcctttt ccgagcctgg aggttctttt 600
tgctggtctt acatttgggg gctcgtccgg gat 633

<210> 8
<211> 20
<212> DNA
<213> Porcine endogenous retrovirus

<400> 8
tggaaagatt ggcaacagcg 20

<210> 9
<211> 20
<212> DNA
<213> Porcine endogenous retrovirus

<400> 9
agtgatgtta ggctcagtgg 20

<210> 10
<211> 20
<212> DNA
<213> Porcine endogenous retrovirus

<400> 10
ttctcctttg tcaattccgg 20

<210> 11
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<213> Porcine endogenous retrovirus

<400> 11
tactttatcg ggtcccactg 20

<210> 12
<211> 20
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<213> Porcine endogenous retrovirus

<400> 12
ctgacctgga ttagaactgg 20

<210> 13
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<213> Porcine endogenous retrovirus

<400> 13
atgttagagg atggtcctgg 20

<210> 14

<211> 22
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<213> Porcine endogenous retrovirus

<400> 14
acctcgagac tcggtggaag gg 22

<210> 15
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<213> Porcine endogenous retrovirus

<400> 15
ctgggttctg ggagggttag gttg 24

<210> 16
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<213> Porcine endogenous retrovirus

<400> 16
acgtactgga ggagggtcac ctga 24

<210> 17
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<212> DNA
<213> Porcine endogenous retrovirus

<400> 17
gtcccgaacc cttataacct cttg 24

<210> 18
<211> 1980
<212> DNA
<213> Porcine endogenous retrovirus

<400> 18

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ttggctaccc tactttctgc tttaacagga cccttaatag tcctcctcct gttactcaca 1860
gttgggccat gtattattaa caagttaatt gccttcatta gagaacgaat aagtgcagtc 1920
cagatcatgg tacttagaca acagtaccaa agcccgtcta gcagagaagc tggccgctag 1980

<210> 19
<211> 7362

<212> DNA

<213> Porcine endogenous retrovirus

<400> 19

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